

What is claimed is:

1. A method for utilizing a feature diagram in the creation of a potential statechart, comprising:

adding a state to the potential statechart for each state-type feature added to the feature diagram;

for each added state-type feature that is an optional feature, adding a decision state to the potential statechart that has a guarded transition to the added state and adding an else transition;

for each alternate relationship to be added to the feature diagram, adding a decision state to the potential statechart and adding a guarded transition from the added decision state to each of the states in the alternate relationship, wherein an else transition is added to the added decision state if the features in the alternate relationship are optional; and

for each or-relationship to be added to the feature diagram, adding a decision state to the potential statechart for each state in the or-relationship, wherein each added decision state has a guarded transition to one of the states in the or-relationship, and each decision state has an else transition.

2. The method of claim 1, wherein the potential statechart conforms to the Unified Modeling Language.

3. The method of claim 1, wherein the feature diagram is useful for modeling a real-time control system.

4. The method of claim 1, wherein the feature diagram is useful for modeling a system for controlling semiconductor equipment.

5. A method for utilizing a feature diagram in the creation of a potential statechart, comprising:

adding a state to the potential statechart for each state-type feature added to the feature diagram;

for each added state-type feature that is an optional feature, adding a decision state to the potential statechart that has one guarded transition to the added state and adding an else transition;

for each alternate relationship to be added to the feature diagram, adding a decision state to the potential statechart and adding a guarded transition from the added decision state to each of the states in the alternate relationship, wherein an else transition is added to the added decision state if the features in the alternate relationship are optional;

for each or-relationship to be added to the feature diagram, adding a decision state to the potential statechart for each state in the or-relationship, wherein each added decision state has a guarded transition to one of the states in the or-relationship, and each decision state has an else transition; and

adding transitions to the potential statechart, wherein the transitions are transitions that are triggered by a signal or stimulus.

6. The method of claim 5, wherein the potential statechart conforms to the Unified Modeling Language.

7. The method of claim 5, wherein the feature diagram is useful for modeling a real-time control system.

8. The method of claim 5, wherein the feature diagram is useful for modeling a system for controlling semiconductor equipment.

9. A method, comprising:
creating a feature diagram and a corresponding potential statechart;
modifying the feature diagram; and
making modifications to the potential statechart that correspond to the modifications of the feature diagram to produce a deterministic statechart.

10. The method of claim 9, wherein the potential statechart conforms to the Unified Modeling Language.

11. The method of claim 9, wherein the deterministic statechart conforms to the Unified Modeling Language.
12. The method of claim 9, wherein the feature diagram is useful for modeling a real-time control system.
13. The method of claim 9, wherein the feature diagram is useful for modeling a system for controlling semiconductor equipment.
14. The method of claim 9, wherein the deterministic statechart is useful for generating computer-executable code.
15. The method of claim 9, wherein the deterministic statechart is useful for generating computer-executable code for a real-time control system.
16. The method of claim 9, wherein the deterministic statechart is useful for generating computer-executable code for a system for controlling semiconductor equipment.
17. A method for generating computer-executable code, comprising:
creating a feature diagram and a corresponding potential statechart;
modifying the feature diagram;
making modifications to the potential statechart that correspond to the modifications of the feature diagram to produce a deterministic statechart; and
generating computer-executable code from the deterministic statechart.
18. The method of claim 17, wherein the potential statechart conforms to the Unified Modeling Language.
19. The method of claim 17, wherein the deterministic statechart conforms to the Unified Modeling Language.

20. The method of claim 17, wherein the feature diagram is useful for modeling a real-time control system.
21. The method of claim 17, wherein the feature diagram is useful for modeling a system for controlling semiconductor equipment.
22. The method of claim 17, wherein the deterministic statechart is useful for generating computer-executable code.
23. The method of claim 17, wherein the deterministic statechart is useful for generating computer-executable code for a real-time control system.
24. The method of Claim 17, wherein the deterministic statechart is useful for generating computer-executable code for a system for controlling semiconductor equipment.
25. A system, comprising:
one or more feature diagrams;
one or more deterministic statecharts generated from the one or more feature diagrams; and
computer-executable code generated from the one or more deterministic state diagrams.
26. The system of Claim 25, wherein the computer-executable code is useful for implementing a real-time control system.
27. The system of claim 25, wherein the computer-executable code is useful for controlling semiconductor equipment.
28. The system of claim 25, wherein the one or more deterministic statecharts conforms to the Unified Modeling Language.

29. The system of claim 25, wherein the one or more feature diagrams are useful for modeling a real-time control system.

30. The system of claim 25, wherein the feature diagram is useful for modeling a system for controlling semiconductor equipment.

31. A system useful for generating computer-executable code, comprising:
a repository having stored feature diagrams and corresponding potential statecharts; and
an editor capable of making modifications to the stored feature diagrams and capable of making modifications to the potential statecharts that correspond to modifications made to the stored feature diagrams.

32. The system of claim 31, wherein the computer-executable code is useful for implementing a real-time control system.

33. The system of claim 31, wherein the computer-executable code is useful for controlling semiconductor equipment.

34. The system of claim 31, wherein the stored feature diagrams and corresponding potential statecharts are useful for modeling real-time control systems.

35. The system of claim 31, wherein the stored feature diagrams and corresponding potential statecharts are useful for modeling a system for controlling semiconductor equipment.

36. The system of claim 31, wherein the potential statecharts conform to the Unified Modeling Language.

37. A system useful for generating computer-executable code, comprising:
a repository having stored feature diagrams and corresponding potential statecharts;
an editor capable of making modifications to the stored feature diagrams and capable of making modifications to the potential statecharts that correspond to modifications made to the stored feature diagrams; and
a code generator for generating computer-executable code from deterministic statecharts.
38. The system of claim 37, wherein the computer-executable code is useful for implementing a real-time control system.
39. The system of claim 37, wherein the computer-executable code is useful for controlling semiconductor equipment.
40. The system of claim 37, wherein the potential statecharts and deterministic statecharts conform to the Unified Modeling Language.
41. The system of claim 37, wherein the stored feature diagrams are useful for modeling a real-time control system.
42. The system of claim 37, wherein the stored feature diagrams are useful for modeling a system for controlling semiconductor equipment.
43. A machine-accessible medium having associated content capable of directing the machine to perform a method, the method comprising:
creating a feature diagram and a corresponding potential statechart;
modifying the feature diagram; and
making modifications to the potential statechart that correspond to the modifications of the feature diagram to produce a deterministic statechart.

44. A data signal representing computer instructions for causing a computer system to perform a method, the method comprising:

- creating a feature diagram and a corresponding potential statechart;
- modifying the feature diagram; and
- making modifications to the potential statechart that correspond to the modifications of the feature diagram to produce a deterministic statechart.

45. A computer-readable medium having computer instructions for performing a method, the method comprising:

- creating a feature diagram and a corresponding potential statechart;
- modifying the feature diagram; and
- making modifications to the potential statechart that correspond to the modifications of the feature diagram to produce a deterministic statechart.